

THE SIGNIFICANCE OF SV. ANDRIJA ISLAND (SVETAC) ON A SAILING ROUTE ACROSS THE ADRIATIC PRESENTED ON OLD GEOGRAPHICAL MAPS

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This paper deals with the significance of traffic position of Sv. Andrija Island (Croatia; Eng. *St Andrew Island*) on Adriatic sailing routes. Numerous archeological findings and written historical sources indicate the importance of the route across the Adriatic from Monte Gargano on western Adriatic coast over Palagruža toward Sv. Andrija or Vis and finally to eastern Adriatic coast (and vice versa). As it could be expected, the main geographical objects of terrestrial navigation along this route were always presented on old geographic and navigational maps. Although it is a small island, Sv. Andrija was always presented on these maps, regardless of the map scale, and sometimes it was even made larger than it actually was. Such cartographic generalization, i.e. choice of items presented on the maps, indicate historical and geographical continuity of traffic valorization of Sv. Andrija and the whole eastern Adriatic maritime zone as it is obvious that geographers and cartographers of that time paid much attention to it.

Key words: Sv. Andrija Island, Adriatic Sea, Croatia, maritime geography, historical cartography

U članku se raspravlja o značenju geoprometnoga položaja otoka Sv. Andrija (Hrvatska) na jadranskim pomorskim rutama. Brojni hidroarheološki nalazi i pisana povijesna svjedočanstva govore o važnosti prekojadranskoga pravca od Monte Gargana na zapadnoj obali preko Palagruže prema Sv. Andriji ili Visu do istočne obale Jadrana (i obrnuto). Očekivano, glavni geografskih objekti terestričke navigacije duž navedenoga pomorskoga pravca redovito su prikazivani na starim geografskim i pomorskim kartama. Unatoč maloj površini Sv. Andrije, i taj je otok na kartama, s obzirom na mjerilo, redovito prikazivan, pa čak i preuveličavan. Takva kartografska generalizacija, odnosno sam izbor geografskog sadržaja ukazuje na povijesno-geografski kontinuitet prometne valorizacije Sv. Andrije, ali i cijeloga istočnojadranskoga akvatorija, kojemu onodobni geografi i kartografi s pravom pridaju veliko značenje.

Ključne riječi: Sv. Andrija, Jadransko more, Hrvatska, pomorska geografija, povijesna kartografija

Introduction¹

Adriatic Sea is a bay of the Mediterranean Sea, which is deeply indented into the European mainland (MAGAŠ, 1998, RIĐANOVIĆ, 2003). Such geographic position made it a traffic connection that links Central and Southern Europe with other Mediterranean countries (BRAUDEL, 1995, 1997). Ever since prehistorical times, the maritime traffic along the Adriatic connected Mediterranean market with Central Europe, and over amber route with Northern Europe (ROGIĆ, 1956, STRAŽIČIĆ, 1989, KOZLIČIĆ, 1990a, BRAUDEL, 1995, 1997). Throughout history most of the navigation was done along the coast for security reasons. Namely, safe navigation depended mostly on construction of the ships and navigational skills of seamen. Very important for the navigation were the theory and practice of navigation, available instruments for sea orientation, geographical knowledge on navigational area and numerous skills from other sciences (astronomy, oceanography, meteorology etc). The basic maritime knowledge and skills did not differ, regardless of the navigational goal, whether it was trade, war or some other. Many archeological, cartographic and written sources indicate that navigation was more frequent along eastern part of the Adriatic (BRUSIĆ, 1970, 1993, ČEČUK, 1968, KOZLIČIĆ, 1995b, 1997, 2000).

The sequence of 1,246 islands, islets and rocks in eastern Adriatic maritime zone (DUPLANČIĆ LEDER ET AL., 2004, this volume) has always provided protection for the ships that sailed on both routes of eastern Adriatic sailing directions: NW-SE and SE-NW (Fig. 1).

The navigation was also performed between the two opposite Adriatic coasts, and this statement is supported by numerous historical sources dating from the period of Antiquity to later historical periods (PETRIĆ, 1980, KIRIGIN, MILOŠEVIĆ, 1981, KIRIGIN, 1990, 1995, KOZLIČIĆ, 1990a, 1996b, FORENBAHER ET AL., 1994). Besides traffic connections in Otranto Strait (Otranto – northern Corfu – Acroceraunian Mountains in the south of present day Albania)² and Pula – Ancona, there was another one, more frequently used: Salona local waters – Gargano (Sipont) Peninsula. The traffic in Otranto Strait, which divides the Adriatic from the Ionian Sea, went in E-W and W-E direction, and Pula-Ancona traffic in N-S and S-N directions. This indicates that successful navigation required only the basic knowledge of navigation and geography, favourable wind and a relatively solid ship. When navigating in Otranto Strait the seamen could use important terrestrial landmarks by the coast of northern Greece and southern Albania: Kérkyra (Corfu Island) with nearby islets Othonoi, Erikoúsa and Samothráki, Karaburuni Peninsula with Gjuhëzës and Sazan Island (Sezano). Navigation between Pula and Ancona was performed without prominent landmarks, so the seamen navigated by approximately keeping the course north-south (and vice versa).

¹ This paper was written in 2000 by M. Kozličić for the multimedial publication about Svetac Island (Sv. Andrija). But, since it has not been published yet, its expanded version written in cooperation with J. Faričić is presented here.

² It is a mountain range north and east of Corfu, in the south of Albania and northwestern Greece. It stretches from Lungara, Gribës and Çikës Mountains toward Epirus.

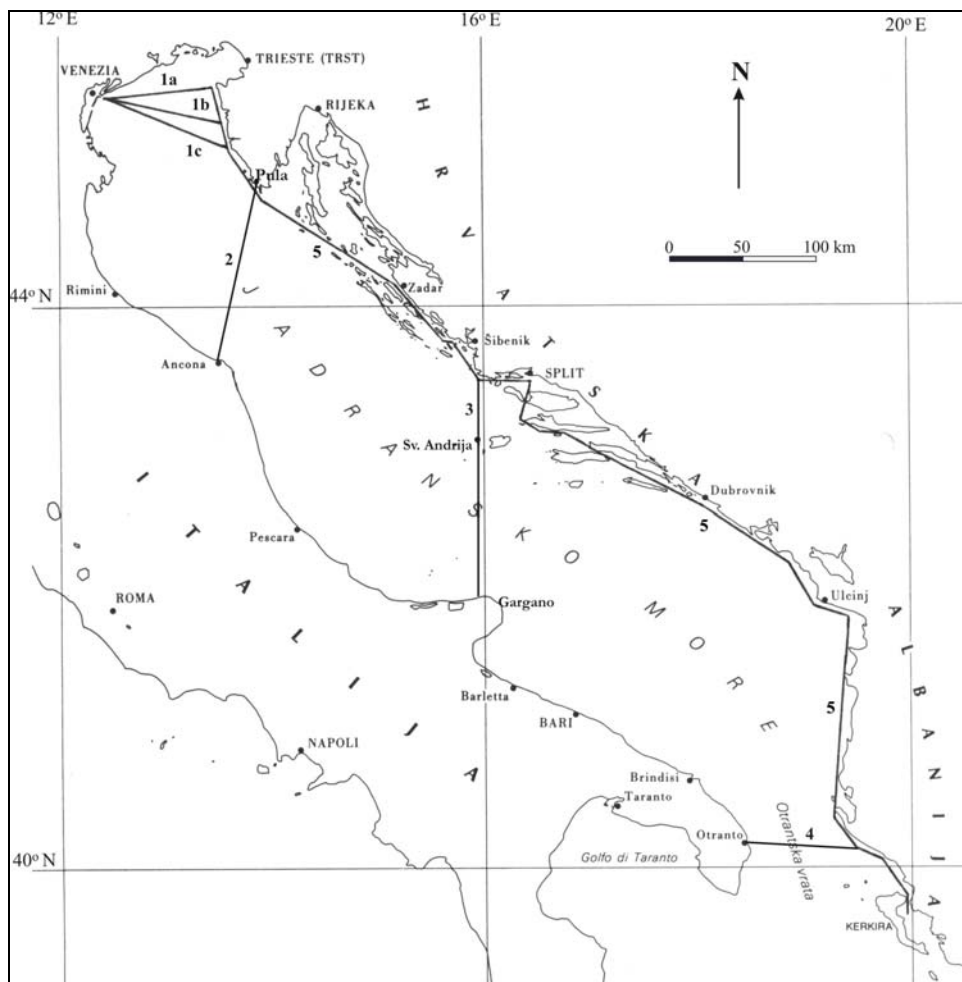


Fig. 1 Main Adriatic sailing directions: 1 – navigational route between Venice and Istria (1a – Venezia-Koper, 1b – Venezia - Poreč, 1c – Venezia - Rovinj), 2 – overseas route between Pula and Ancona, 3 – overseas route between central Dalmatia and Gargano Peninsula with prominent position of Sv. Andrija, 4 – overseas route across Otranto Strait, 5 – eastern Adriatic navigational route

Sl. 1. Glavni jadranski pomorski pravci: 1 – pomorski put između Venecije i Istre (1a – Venecija - Koper, 1b – Venecija - Poreč, 1c – Venecija - Rovinj), 2 – prekomorski put između Pula i Ancone, 3 - prekomorski put između srednje Dalmacije i poluotoka Gargana s istaknutim položajem Sv. Andrije, 4 – prekomorski put u Otrantskim vratima, 5 - istočnojadranska plovidbena ruta

On transversal direction from wider Split area (i.e. antique Salona local waters) to Gargano there were several landmarks: Šolta, Brač, western part of Hvar Island, Vis, Palagruža, Mala Palagruža, and finally, Tremiti Archipelago. If this route was navigated

after the coastal navigation along eastern side of the northern and central Adriatic (longitudinal direction from the coast of Istria – Kamenjak Cape – Unije – Lošinj – Kvarnerička Vrata Strait – Vir Sea – Middle Channel – Murter Sea – Žirje – Ploča Cape), then the ship would go directly along western part of Drvenik Channel toward Vis. On this route the seamen tried to keep Vis on the eastern side, and Sv. Andrija and Jabuka on the western side of the horizon. Further on, they would continue toward Tremiti Islands if they wanted to sail to the ports west of Gargano, or toward Palagruža if they went to one of the ports south and southeast of that peninsula (KIRIGIN, MILOŠEVIĆ, 1981) and even farther toward Otranto. This latter route, together with the route between Vis and Sv. Andrija, settled in the Antiquity, is confirmed by many archeological findings registered along the coast, especially around Ploča Cape, Vis, Palagruža and Gargano Peninsula. Today, this traffic direction could be named *Diomedes' navigational route*, because the worshippers of Diomedes' Cult³ left their marks on all the above-mentioned places (KIRIGIN, MILOŠEVIĆ, 1981, KIRIGIN, 1995, KOZLIČIĆ, 1996b).

The importance of Sv. Andrija on the transversal Adriatic navigational route

Sv. Andrija Island (Svetac, Sućadrijevac) is located about 25 km west of Vis Island (Fig. 2). The island's surface is just 4.19 km², but the highest peaks are over 300 m high (Kosa 316 m, Štandarac 307 m). The coastline is 12 km long (DUPLANČIĆ LEDER et al., 2004, this volume), it is not well indented, but it is very steep and inaccessible. A few smaller coves (Donje Voje, Zalapola, Berščanovice, Kolac, Podvodu, Crna Ploča, Slatina, Povlebok, Kozje stene, Draga, Lakitna, Stara Ruška and Zaruška) cannot provide a safe harbor for larger ships in case of strong winds. Inclination of the slopes is high and increases the intensity of erosional processes. Island's slopes dive into the sea up to 100 m below the sea level. The exception is a shallow submarine area that rises toward Kamik Island, west of the island, and toward Zlatni Kamik rocks, immediately by Zlatna glava Cape. The horizons of the ground are low, and somewhat larger accumulation of arable land is situated further from the coastline, in Polje. Due to the lack of arable land, the agriculture on the island was never well developed. The island is covered by holm oak (*Quercus ilex*), but it was never exploited since it was hard to transport it to the coast and ships. I. RUBIĆ (1952) claims that there were some attempts to cut these trees, but the ships could not approach the shore so the cut trees remained unused.

The lack of a larger harbor does not indicate that there was no continuity of life on the island. On the contrary, the island was populated even in prehistory, and the only settlement on the island (Sv. Andrija) developed by the cove with the same name and by Satina cove, where the terrain was flatter and near a small dry valley. The inhabitants were mostly engaged in fishing, and since the seamen did not stay long on the island, there weren't any services (lodgings, food, ship repairs).

³ Diomedes was, according to Greek mythology, the King of Argos and one of the most prominent Greek heroes in Trojan War (he is mentioned in 5th canto of Homer's *Iliad*; HOMERUS, 1949). According to tradition, Diomedes was a founder of many cities in Apulia (southern Italy).

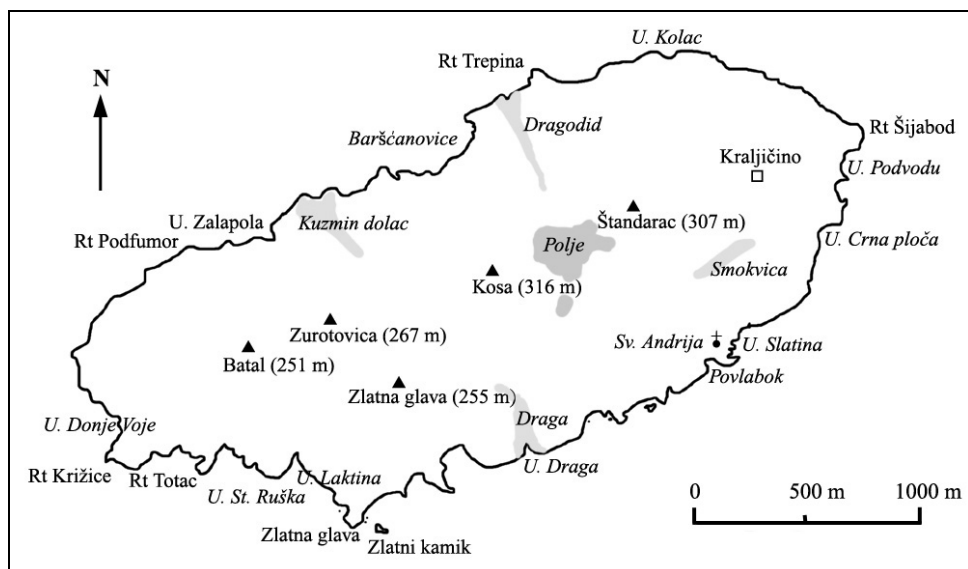


Fig. 2 Main toponyms of Sv. Andrija Island
 Sl. 2. Glavni toponimi otoka Sv. Andrija

In the last few decades, due to depopulation of the Croatian islands, especially offshore islands, Sv. Andrija is only occasionally inhabited, mainly during fishing season. In 2001 there was only one permanent inhabitant on the island (URL 1). Unlike Sv. Andrija, other Croatian islands of the similar size (e.g. Zverinac, Susak, Rava) have more inhabitants, primarily because they are closer to the mainland and have more favorable geomorphologic and pedologic features. This population also influenced intensive transformation of rural landscape on the island.

Numerous remains of antique anchors around Kolac Bay (NE side of Sv. Andrija) witness the continuous use of navigational route from Ploča Cape toward Gargano during Antiquity and Middle Ages (KIRIGIN, MILOŠEVIĆ, 1981). Archeological remains under the sea indicate that this bay, but also other bays on the island, were often anchorage sites in cases of bad weather or just to stay overnight. About 30 nautical miles long navigation on relation Žirje – Ploča Cape – Sv. Andrija was not the most significant navigational enterprise. The sailboats with average speed of 5 knots could sail that relation in about 6-7 hours, i.e. in half a day during the periods when daylight lasted 12 hours or more.⁴ Throughout its 3,000 years long history, until 19th century, navigation was mostly done during the day and also in meteorologically more favorable part of the year (from the end of spring till the beginning of autumn; PENZAR ET AL., 2001, VUČETIĆ, VUČETIĆ, 2002). Knowing this, we can conclude that after Sv. Andrija navigation was not continued toward Gargano, because if it was continued, the ship would come about 20 or

⁴ The length of day and night depends on latitude, and it changes throughout the year due to Earth's revolution (KLARIN, 1995). In middle latitudes (area between Tropic of Cancer and Arctic Circle), where Croatia is located, day is longer than the night between spring and autumnal equinox (KOZLIČIĆ, 1990b, see chart at the end of this paper).

30 miles south of the island when the night fell, leaving the ship at open sea during the night. In such cases it would be difficult to orientate, especially until 13th century (before the compass was used), particularly when the sky was cloudy and there were no visible constellations to orientate upon and assume the current geographical position. Since the period of Antiquity the seamen could orientate very well by relying on constellations in bright nights (the first ones to use them were Phoenicians), but nightly navigation was generally avoided (KOZLIČIĆ, 1990a, 1990b). For these reasons the bays of Sv. Andrija Island were anchorages, and the decision which bay to use depended on the winds: the bays on southern side were used during northeastern wind and the bays on northern side during sirocco.

The same situation was when the ships sailed from Gargano to Sv. Andrija. That route was about 60 nautical miles long and if the ship sailed at dawn, it would reach Sv. Andrija at twilight or dusk. Depending on the navigational technology, the ship could continue to sail only tomorrow, i.e. in the morning. So, the ship had to anchor again, because there was no place to put in, considering the unfavorable geomorphologic features of the coastline.

At the beginning of the Byzantine rule over eastern Adriatic coast, in NE part of the island (elevation 221 m, about 1,000 m west of Šijabod Cape) a Byzantine fortress was built. Many similar fortresses were built along eastern Adriatic coast. The nearest fortresses to this one were those on Kornat and Žirje Islands (GUNJAČA, 1980, 1986, KIRIGIN, MILOŠEVIĆ, 1981, PETRICIOLI, 1970). According to the local legend, Illyrian queen Teuta lived in this fortress, so the fortress was named after her (Krajicina, Kraljičino, Eng. Queen's). The legend also says that after the defeat in the battle of Hvar, Teuta committed suicide by jumping from the fortress into the sea (RUBIĆ, 1952).

At that time, the Byzantine system of fortresses marked a thousand years old coastal and overseas routes. Many documents from the Middle Ages confirm that,⁵ especially notes written by Cardinal Bozon, who described the trip of Pope Alexander III from Vast on Gargano Peninsula to Zadar in 1177 (STRGAČIĆ, 1954, OREB, 1994). The Pope's ships sailed on so-called Diomedes' route: Gargano – Palagruža or Tremeti – Sv. Andrija – Ploča Cape – Žirje – Murter Sea – Pašman Channel – Zadar Channel – Zadar (and further toward Venice).

Historical and geographical significance of Sv. Andrija in cartographic sources

The significance of overseas route from Gargano Peninsula toward eastern Adriatic coast (and vice versa) is clearly seen from navigational and geographic maps dating from the end of the Middle Ages. Among the first maps there were two maps made by Petrus Vesconte in 1318 (KOZLIČIĆ, 1995d) and on them Sv. Andrija (*s.¹⁰ andrea*) is clearly marked. It is identical on the map made by Angelinus de Dalort in 1325 (*s.¹⁰*

⁵ Trip of Byzantine military commander Belizario from Ravenna to Dürres in 545, which is mentioned in the work by Kirigin and Milošević (1981), is not a confirmation of the navigational route toward Sv. Andrija, but the evidence that the route between Gargano and Vis was in function. Although the source states that the navigation took place at open sea, the truth is that, at first, it could have been coastal navigation Ravenna – Ancona – northern Gargano, and then beside Palagruža at open sea toward Vis. From Vis the navigation continued toward northeast, to Hvar, or directly toward east, to Korčula.

andrea), as well as on *Carta Catalana* made by an anonymous author in 1375 (*sancto andrea*) (MARKOVIĆ, 1993, KOZLIČIĆ, 1995d).



Fig. 3 Sv. Andrija on Coppo's portolano map of the Adriatic, 1525 (LAGO, 1998)

Sl. 3. Prikaz Sv. Andrije na Coppovoj portulanskoj karti Jadrana, 1525. (LAGO, 1998)

Continuous valorization of Sv. Andrija's traffic location is witnessed by numerous maps from later periods. For example, in 1525 Pietro Coppo (Petar Kopic) on his map of the Adriatic (KOZLIČIĆ, 1995d, LAGO, 1998; Fig. 3) clearly emphasizes Sv. Andrija (*s. andrea*), which is located west of Vis (*lisa*) on compass line that coincides with navigational route that leads to Žirje (*izuri*), passes near Arkandel,⁶ and continues toward the area between Sv. Andrija and Vis. Further on, the navigational route continued toward the SW beside Tremiti Islands (*tremiti*) or directly southward near Palagruža (*pelegosa*) toward Gargano (the map presents a small town on Gargano Peninsula named

⁶ Arkandel is an islet located near Ploče Cape. On Coppo's map it wasn't named because there wasn't enough space on the map, but its location was marked (KOZLIČIĆ, 1995d, map on page 69). On later maps, e.g. on Barents' map (Fig. 1), it was marked as Sv. Arkandel (*S. Arcanzolo*). To the best of our knowledge only J. N. Bellin (1771, Pl. 1) in his "General Map of Venetian Bay" gives a more precise name: *I. S. Michel arc.* (The island of St. Michael, the Archangel). The island was named after the Benedictine convent, which was located on the top of the island (RUBIĆ, 1952).

Monte Sant' Angelo; *m. s. anzolo*). However, Coppo made a mistake in presenting a small island of Brusnik (*meliselo*), which was an important landmark, because he mapped it west of Sv. Andrija instead of east. The same situation is on the map of the Adriatic by Giovanni Andreas Vavassore from 1558, which was the first printed navigational map of this sea (BAGROW, SKELTON, 1966, LOVRIC, 1988, KOZLIČIĆ, 1995d, 1999c, LAGO, 1998).

The intensive transversal navigation over the Adriatic is even better presented on the map by Willem Barents from 1595 (reprint 1637-1662). On his map the whole group of islands near Vis (*Lissa*) is marked as a central landmark (Fig. 4). West of Vis there are Jabuka (*Pomo*), Brusnik (*Melissello*) and Sv. Andrija Islands (*S. Andrea*), and east of Vis there are Sušac (*Caza*), Kopište (*Casolo*) and Lastovo (*Agosta*). Palagruža is not presented as one island, but as a group of islands (*Pelagosa*). The same refers to Tremiti Islands and Gargano coast, which are presented in many details (KOZLIČIĆ, 1995a, 1999a, 1999b).

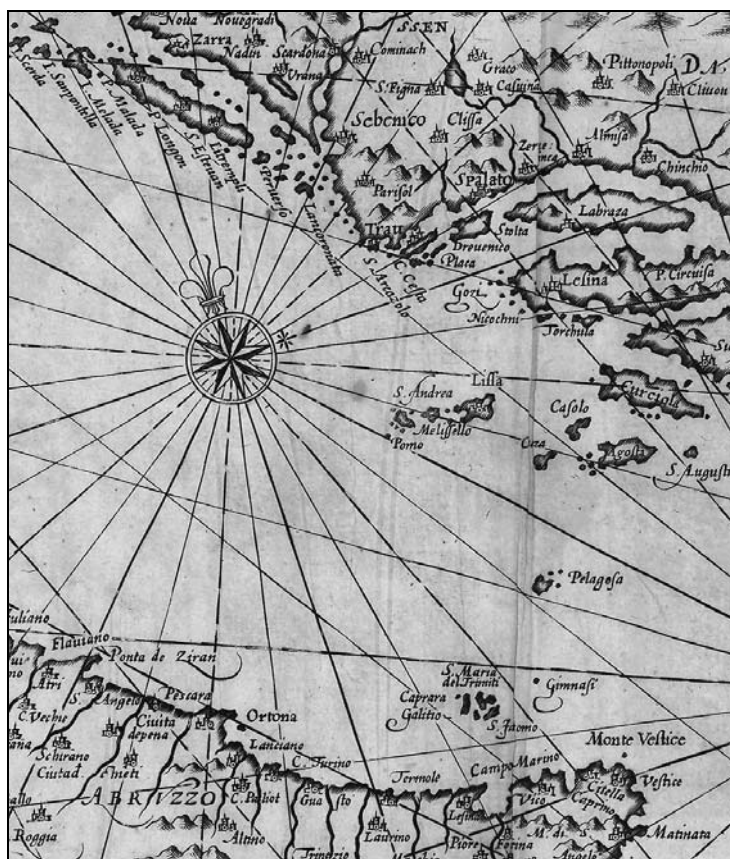


Fig. 4 Sv. Andrija on Barents' map *Tabvla Sinvs Venetici*, 1595 (University Library, Split)
 Sl. 4. Sv. Andrija na Barentsovoj karti *Tabvla Sinvs Venetici*, 1595. (Sveučilišna knjižnica, Split)

The above-mentioned cartographic sources indicate that in course of time new geographic information were collected, but the cartographers chose only the most significant ones. Although generalization was particularly subjective and unsystematic at that time, the mapping of Sv. Andrija did not change. This island is also well presented on the map *Illiricum hodiernum* made by Willem Janszoon Blaeu in 1668 (Fig. 5) and on other maps from 17th century. On Blaeu's map, which was made for the work of Ivan Lučić Trogiraniin named *De Regno Dalmatiae et Croatiae*, the west of Vis there are Jabuka (*Pomo*), Brusnik (*Melisello*) and Sv. Andrija Islands (*S. Andrea*), and southwest of it there is Biševo (*Busi*). East of Vis there are Sušac (*Cazitre*), Kopište (*Catzola*), Lastovo (*Lagosta*) and Lastovci (*Lagustino*). By the lower edge of the map there is an inscription to Viceroy Petar Zrinski, so that Palagruža and the remaining part of navigational route toward Gargano are not presented (MARKOVIĆ, 1993, KOZLIČIĆ, 1995a).



Fig. 5 Sv. Andrija on the map *Illiricum hodiernum*, by W. J. Bleau and I. Lučić, 1668 (Archeological Museum, Split)

Sl. 5. Prikaz Sv. Andrije na karti *Illiricum hodiernum* W. J. Bleaua i I. Lučića 1668. (Arheološki muzej, Split)

There were also no significant changes in presenting Sv. Andrija on *isolario* (Ital. *isola* = island; maritime atlas with charts of islands and coastline) *Mari, golfi, isole, spiagge, porti, città, Fortezze, Ed altri Luoghi Dell'Istria, Quarner, Dalmazia Albania*

Epiro, e Livadia made by Vincenzo Maria Coronelli from 1688 (MARKOVIĆ, 1993, KOZLIČIĆ, 1995d, LAGO, 1998). In his work Coronelli presented Sv. Andrija on the map of the Adriatic (*Golfo di Venezia*), on the map of western part of Dalmatia (*Ristretto della Dalmazia*) and on out-of-date portolano of Vis (*I. Lissa nella Dalmazia*). However, Coronelli gives more detailed presentation of Sv. Andrija (Fig. 6) on the map of Vis (*Isola di Lissa*), published in *Isolario dell'Atlante veneto* from 1696 (KOZLIČIĆ, 1995d). On this map there are two capes, Trepina (*Baglabad*) and Zlatna glava (*Zlatnabad*), Slatina Bay (*Slatina Porto*), Baršćanovica Bay (*Pristaneschie*) and Ruška Bay (*Ruscka*). That was the most detailed presentation of the island at that time. Relatively numerous toponyms indicate the significance of Sv. Andrija. On the other hand, the choice of contents on the map (capes and bays) reveals that Coronelli was a versatile cartographer whose aim was not only to make general geographical maps, but also quality maps that could be used by seamen.



Fig. 6 Coronelli's presentation of Sv. Andrija on the map of Vis, 1696 (KOZLIČIĆ, 1995d)
Sl. 6. Coronellijev prikaz Sv. Andrije na karti Visa, 1696. (KOZLIČIĆ, 1995d)

Maps from 18th and 19th century contain even more data. As it could be expected, these maps always present the islands of the central Adriatic, including Sv. Andrija. Typical example of presenting central part of the Adriatic is the map by Jacques Nicolas Bellina published with other maps in *Description géographique du Golfe de Venise et de la Morée* from 1771 (KOZLIČIĆ, LOZIĆ, 1994). Bellin's work, the first pilot guide of the Adriatic, is mostly based on the maps of Venetian cartographer V. M. Coronelli. According to Bellin's map (Fig. 7), the route went directly from Žirje (*I. Zuri*) to Drvenik (*I. Zirona*), leaving Šolta (*I. Solta*) on the left side. That sailing direction continues directly southward toward Vis (*I. Lissa*) and Biševo (*I. Busi*), which remain on the eastern side, while Jabuka (*I. Pomo*) and Sv. Andrija (*I. S. Andre*) remain on the western side. Interestingly, further on there is no Palagruža, but Tremiti Islands are presented (*I. de Tremiti*). Gargano is named Monte Sant'Angelo (*M. S. Angello*) and its most important ports are also presented (BELLIN, 1771, Pl. 1, KOZLIČIĆ, LOZIĆ, 1994).



Fig. 7 Bellin’s map *Carte Générale du Golphe de Venise*, published at the beginning of *Description géographique du Golfe de Venise et de la Morée*, 1771 (University Library, Split)

Sl. 7. Bellinova karta *Carte Générale du Golphe de Venise* objavljena na početku djela *Description géographique du Golfe de Venise et de la Morée*, 1771. (Sveučilišna knjižnica, Split)

At the beginning of 19th century, famous French hydrographer Charles François Beautemps-Beaupré initiated the first systematic and scientifically based hydrographic, geologic, geomagnetic and oceanographic research of the Adriatic (KOZLIČIĆ, 1995b, 1995c). Hydrographic research and mapping of the Adriatic continued in 1820s (SMYTH, 1854, 362-374) and finally it was published in 1822-1824 in Milan as *Carta di cabotaggio del Mare Adriatico* in scale 1:175,000. On the tenth folio (*Foglio X*) Sv. Andrija is also presented (*Scoglio S.^t Andrea*; Fig. 8). By comparing the Milan map from

1824 with the new navigational map of the same area (*Map 100-22 Jabuka-Vis*, Croatian Hydrographic Institute, 2002; Fig. 9), but in scale 1 : 100,000, one can easily notice that the number of toponyms is almost identical.

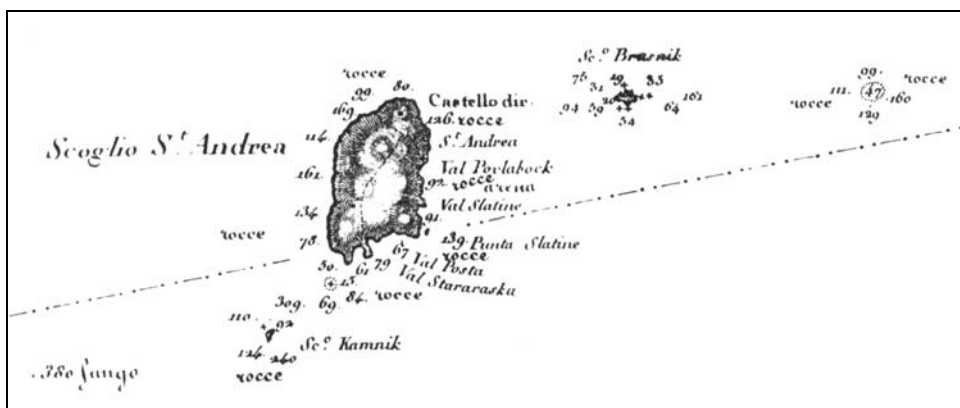


Fig. 8 Detail from map *Foglio X* from the collection *Carta di cabotaggio del Mare Adriatico*, 1822-1824 (State Archive, Zadar)

Sl. 8. Detalj s karte *Foglio X* iz zbirke *Carta di cabotaggio del Mare Adriatico*, 1822.-1824. (Državni arhiv, Zadar)

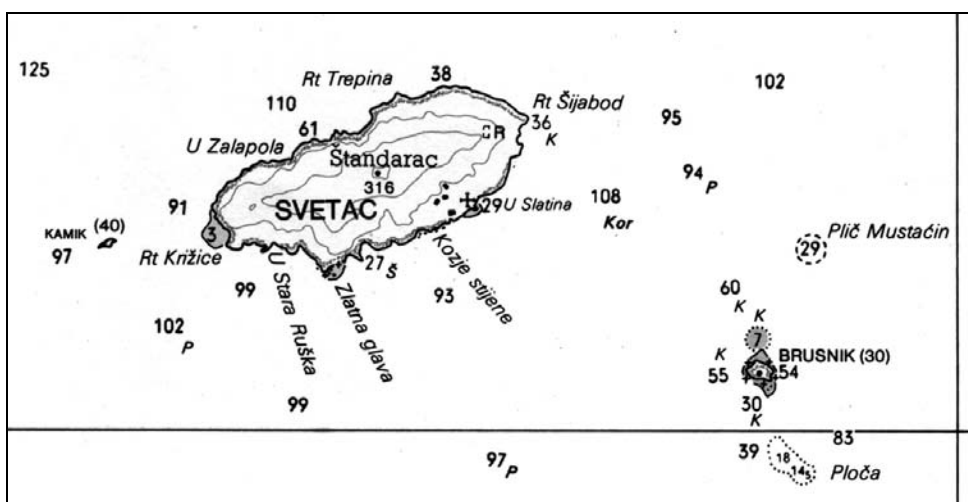


Fig. 9 Sv. Andrija on contemporary navigational map PK 100-22 Jabuka – Vis, Croatian Hydrographic Institute, 2002

Sl. 9. Sv. Andrija na suvremenoj pomorskoj karti PK 100-22 Jabuka – Vis, Hrvatski hidrografski institut, 2002.

Namely, Stara Ruška Bay (*Val Stararaska*) and Slatina Bay (*Val Slatine*) are presented on both maps. Milan map also presents Vela Lakitna (*Val Posta*) and Povlebok Bays (*Val Povlabock*), Zlatna glava Cape (*Punta Slatina*), one settlement (*S.^l Andrea*) and an islet, Kamik (*Sc.^o Kamnik*), west of Sv. Andrija. In addition, the ruins of old Byzantine fortress on the hill above the settlement are also presented (*Castello dir.*). On the modern navigational map from 2002 the emphasis is put on capes and not on bays, as it is the case with Milan map from 1824. These data indicate that cartographic generalization and choice of contents on the map are different.

Why is this so? Namely, for the first time in the history of mapping of two Adriatic coasts the Milan map from 1824 provides exquisite number of toponyms. In addition, this map was made for sailing ships navigation, in which case it was of the utmost importance to know every bay where the ship can find shelter. Modern map also provides information on bays where ships can harbor, but it is primarily designed for mechanically operated ships whose navigational and maneuver qualities surpass by far those of sailing ships. To put it simply, modern ships can endure larger sea dynamics than sailing ships. Nevertheless, modern ships also need safe harbors, but only those that are wide and deep enough to provide safe and fast maneuver. Since sailing ships had a shallow draft they could use smaller and shallower bays. However, modern terrestrial navigation also requires a number of landmarks, so detailed presentation of capes is given on the maps. So, the change in selecting geographical contents on the maps was largely influenced by technological and technical innovations in shipbuilding and navigation.

On the basis of previous considerations it can be concluded that throughout history Sv. Andrija had a prominent role as navigational landmark in overseas navigation. There were three basic directions that went from eastern Adriatic to Vis:

1) Direction going from Žirje to Ploča Cape, then on relation Sv. Andrija – Vis leading toward Tremiti (if the destination were ports west of Gargano) or near Palagruža (if the destination were ports south or southeast of Gargano);

2) Direction going from narrower Salona (later Split) maritime zone, through Split Channel (between islands Šolta and Brač), by westernmost part of Hvar Island toward Vis. Vis Island was a turning point for further overseas navigation. If the destination were ports west of Gargano, then the ship would turn from Hvar toward Sv. Andrija – Vis, and further on toward Tremiti and west Adriatic. But, if the destination were ports south or southeast of Gargano, the ship would turn from Hvar toward Vis, so that Vis would remain on western part of the horizon. More precisely, the ships would navigate by eastern part of Vis, beside Biševo, toward Palagruža and then toward Gargano;

3) Route that went toward Hvar and then to eastern part of Vis. If the ship was to sail toward the ports west of Gargano, it would continue along western part of Biševo toward Tremiti. This sailing route was shorter, but still safe. Namely, throughout the history safety was always the most important, regardless of distance and time spent. It was precisely this safety factor that made Jabuka, Sv. Andrija, Vis, Biševo, Brusnik, Kopište, Lastovo, Lastovci, Palagruža and Tremiti so important and inevitable elements of every navigational map. Navigational manuals of the Adriatic also confirm this statement. If the destination were ports south and southeastern of Gargano, the course would have to change, so after the ship had sailed by Biševo it would not continue toward Tremiti, but toward Palagruža and then toward Gargano. Sometime at the end of 17th and the beginning of 18th century the safety of navigation increased due to improved stability and maneuver possibilities of the ships, so the ships did not have to sail toward Hvar, instead

they could turn toward Vis after passing Šćedro Channel. All the other things remained the same, even today.

Besides the above mentioned overseas routes, Sv. Andrija Island was also very important for longitudinal navigation along eastern Adriatic, whether this navigation was long or short coastal navigation.⁷ Sv. Andrija belongs to outer range of islands and sailing outside this protective area was very dangerous for the ship and its crew, because the ship would have to sail at open sea. Even at the end of 19th century Sv. Andrija retained its significant traffic position, despite the fact that the ships had more quality features. This is easily recognized from Austro-Hungarian system of lighthouses that mark the outer navigational route from Susak (*Sansego*) over Vis (*Lissa*) to Oštra Cape in Boka kotorska Bay (*Punta d'Ostro*). Among the lighthouses mentioned in "Maritime Yearbook" from 1910 were Sušac (*Cazza*) and Sv. Andrija (*Donzella – S. Andrea, scoglio*) (*Annuario maritimo*, 1910, Section on lighthouses, No. 254).⁸

Conclusion

Throughout the history the outer range of islands in central part of eastern Adriatic was extremely significant because it enabled connecting western and eastern Adriatic coast. The most significant among these islands were Jabuka, Sv. Andrija, Vis, Palagruža and Tremiti. This paper employs comparative analysis of historical and archeological sources and focuses particularly on Sv. Andrija Island. The inevitable source of new findings were old cartographic materials (navigational and geographical maps).

⁷ *Long coastal navigation* refers to navigation within the Mediterranean (as well as the Adriatic) and visiting Mediterranean ports. When the Adriatic is in question, *small coastal navigation* refers to navigation within the Adriatic Sea. Although these definitions are relatively similar, there are still some differences between them. Long coastal navigation includes longer journey and the ship stops only in the most important ports, but meteorological, economic and political factors can "create" smaller sections of navigation. Numerous visits to different ports were occasions to exchange goods, but also to exchange knowledge and ideas with local population, which had long-term effects on economic, cultural and religious interfusion. Unlike with long coastal navigation, with small coastal navigation the ships visit almost every port, so this voyage was longer (both in time and in distance). Knowing this, the passengers avoid this type of navigation whenever it is possible to do so. Beside these two, there is also *big navigation*. Essentially, it is the same as big coastal navigation, only it doesn't refer only to seas, but also to oceans. Since it is impossible to speak about coastal navigation at oceans, the attribute coastal is omitted when referring to big navigation. However, there is also cabotage (Ital. *cabotaggio*) which primarily refers to navigation within territorial waters of a country or within a unique customs and trade system and it can be compared to small coastal navigation in the Adriatic (BRAJKOVIĆ, 1983). In the time of sailing ships and early steamships in eastern Adriatic (FIO, 1962) a network of centers of long, coastal and local navigation was defined.

⁸ According to this source the lighthouse was activated in 1873 and innovated in 1896. This lighthouse is a square tower that rises from the center of the roof of the lighthouse keeper's house. It is located on the highest part of the island, at the elevation of 68 m, and it rises 17 m above the ground. The light is fixed and it emits white light with alternate flashes of red and white light (*Annuario maritimo*, 1910, Section on lighthouses, No 254).

The old maps almost exactly confirm extremely important significance of Sv. Andrija, on navigation route that relies on following landmarks: Žirje – Ploča Cape – Sv. Andrija – Tremiti or Palagruža, depending on whether the destination were ports west of Gargano Peninsula (then the ship would sail by Tremiti) or south and southeast of Gargano Peninsula (then the ship would sail by Palagruža) – Gargano. Sv. Andrija was a landmark for those ships that would sail from Split maritime zone toward the ports west of Gargano. Finally, Sv. Andrija is a part of the outer range of Croatian Islands, which should not be overpassed in coastal navigation, because after this island range there is only open sea. This was particularly important in older historical periods when the quality of ships and navigation were inadequate for open sea navigation. In view of these facts, Sv. Andrija was an important anchorage and harbor on such navigational routes.

Despite its extremely favorable traffic position, there were no bigger settlements on the island. The landscape has not changed either, primarily due to the lack of arable land and inaccessible coast without wider protected bay. Those few inhabitants on the island could not adequately meet the needs of the seamen that harbored there (provide lodging, food, ship repairs etc.). The local population was mostly engaged in fishing, but due to numerous economic difficulties and traffic isolation during 20th century, the island completely depopulated.

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SAŽETAK**Mithad Kozličić, Josip Faričić: Značenje Sv. Andrije (Sveca) na plovidbenoj ruti preko Jadrana na starim geografskim kartama**

Vanjski niz otoka srednjeg dijela istočnojadranskog akvatorija tijekom svih povijesnih razdoblja imao je iznimno značenje jer je omogućavao povezivanje zapadne i istočne obale Jadranskog mora. Stožerni otoci u tom povezivanju nedvojbeno su Jabuka, Sv. Andrija, Vis, Palagruža i Tremeiti. U članku se, komparativnom analizom povijesnih i arheoloških izvora, osobita pozornost u tom nizu posvetila Svetom Andriji. Pritom se stariji kartografski materijal (plovidbene i geografske karte) pokazao nezamjenjivim izvorom novih znanstvenih spoznaja.

Stare karte gotovo egzaktno potvrđuju iznimno značenje Sv. Andrije, ponajprije na plovidbenom pravcu koji se oslanja na geografske orijentire Žirje – rt Ploča – Sv. Andrija – Tremeiti ili Palagruža, ovisno o tome je li se željelo u produžetku ploviti prema lukama zapadno (tada pored Tremeita) ili južno i jugoistočno od poluotoka Gargana (u tom slučaju uz Palagružu) – Gargano. Prema Sv. Andriji orijentirali su se i oni brodovi koji su iz užeg splitskog bazena također plovili prema lukama zapadno od Gargana. Konačno, Sv. Andrija dio je niza vanjskih hrvatskih otoka, koji se nije smjelo prijeći u obalnoj plovidbi, jer je nakon njega slijedilo otvoreno more. Posebno je to vrijedilo u starijim povijesnim razdobljima, kad je kvaliteta navigacijskih obilježja brodova bila nedostatna za plovidbu otvorenim morem. U tom pogledu, otok Sv. Andrija bio je i važno sidrište i zaklonište na tim plovidbenim putovima.

Unatoč iznimno povoljnom geoprometnom položaju Sv. Andrije, na otoku se nije razvilo značajnije naselje. Nije se bitnije mijenjao ni otočni krajolik, prije svega zbog oskudice plodnoga tla te nepristupačne obalne crte, bez prostranije zaklonjene uvale. Malobrojni stanovnici pomorcima u prolazu nisu mogli osigurati potrebne usluge u dovoljnoj mjeri (konačište, hranu, popravak brodova i sl.). Bavili su se uglavnom ribolovom, a poradi brojnih gospodarskih problema te prometne izoliranosti tijekom 20. st. nastupila je definitivna depopulacija.